0041

Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542

July 19, 2007

Ms. Pamela Grubaugh-Littig
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

RE: Credentials of JBR Environmental Consultants – 2007 Bat Survey, Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Ms. Grubaugh-Littig:

Attached please find four copies of the credentials for the consultant who performed the bat survey in Pace Canyon. A copy of this submittal has been delivered to the Price field office.

Thank you for your assistance and if you have any questions, please call me at (435) 636-2869.

Sincerely yours,

Vicky S. Miller

cc: Dave Spillman
Pete Hess

JUL 2 5 2007

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Credentials of JBR Environmental Consultants - 2007 Bat Survey
Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☒ Yes ☐ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes ☒ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes ☒ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations herein.

David Spillman — David Spillman, Engineering Manager — 7/19/07
Print Name — Sign Name, Position, Date

Subscribed and sworn to before me this 19 day of July, 2007

Vicky Sue Miller
Notary Public

My commission Expires: 1-5, 2008

Attest: State of UTAH } ss:
County of CARBON }

VICKY SUE MILLER
NOTARY PUBLIC • STATE of UTAH
1776 KENILWORTH RD.
HELPER, UTAH 84526
COMM. EXPIRES 1-5-2008

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		JUL 2 5 2007

Form DOGM- C1 (Revised March 12, 2002)

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Credentials of JBR Environmental Consultants - 2007 Bat Survey

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☐ Replace	☐ Remove	Add to Methane Degassification Amendment
☒ Add	☐ Replace	☐ Remove	Chapter 3, Attachment 3-2 - add to the back of existing information
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	Received by Oil, Gas & Mining
7/19/07	JUL 2 5 2007

ATTACHMENT 3-2

THREATENED, ENDANGERED, AND SENSITIVE SPECIES INFORMATION

Add to the back of existing information

Eric A. Holt

Project Manager/Biologist

Biological and Ecological Studies
Resource Monitoring and Management
Regulatory Compliance and Environmental Permitting

Education

M.S., Wildlife Management (Summa Cum Laude), Texas Tech University, 1999
B.S., Wildlife Resources, University of Idaho, 1990
A.S., Biology, North Idaho College, 1988

Professional History

JBR Environmental Consultants, Sandy, Utah; Project Manager, Project Scientist II, GIS Specialist, 2000 – Present
Bureau of Land Management, Coos Bay District, North Bend, Oregon; Wildlife Biologist, 1999 – 2000
Texas Cooperative Fish and Wildlife Research Unit, USGS, Texas Tech University, Lubbock, Texas; Research Assistant, 1997 – 1999
US Forest Service, Intermountain Research Station, Missoula, Montana; Biological Technician - Wildlife, 1996
EG&G Energy Measurements, Las Vegas, Nevada; Scientist II, 1990 - 1995

Professional Experience

Mr. Holt has 17 years experience working as a natural resource biologist in many areas of the western United States. He also has 10 years of experience in providing GIS support for various natural resource projects. He has developed, managed, and analyzed the data from several scientific studies. Mr. Holt has utilized many survey techniques in order to assess the presence and/or monitor the status of many plant and animal species including many listed as Threatened, Endangered, Candidate, or otherwise considered Sensitive. Mr. Holt has written and provided input on various NEPA documents and has been the Project Manager for >20 NEPA projects.

Biological and Ecological Studies

Mr. Holt has had the opportunity to work on several research projects. Responsibilities have included designing statistically valid experimental studies; collecting, managing, and analyzing data, including GIS databases; and reporting and presenting on subsequent results. Below is a description of some of these research endeavors.

- While working for JBR, Mr. Holt has analyzed and performed statistical tests on several data sets ranging from the comparison of vegetation communities to the comparison of chemical profiles of water and soil samples. He has also provided GIS support in the creation of maps and in the analysis of project-related impacts on various natural resources (e.g., loss of big game habitat, identification of potential habitat for sensitive species, 3D visual analysis, acres of various resources within project areas, etc.). Mr. Holt has collected data on vegetative cover and density using established techniques and designed a raven and raptor study designed to monitor the abundance of these species on a treatment and control route.

- As a graduate student, Mr. Holt used GIS technology, in support of the Texas GAP project, to determine the vertebrate community for each of the ecoregions of Texas. He evaluated and compared these communities and used GIS and statistical analysis to identify correlations between the number of species in an ecoregion and various environmental and geographical variables. He also utilized these data to suggest locations for placing future biodiversity reserves in Texas.

- While working for EG&G, Mr. Holt captured, marked, measured, and attached radio-transmitters to hundreds of desert tortoises and used radio-telemetry equipment to locate and record associated information on location, behavior, topography, cover, and weather for hundreds of tortoise locations. He was also involved in an extensive tortoise reproduction study that involved x-raying females, excavating and re-establishing nests, and handling of eggs in order to obtain nest structure data. He also assisted in the collection and processing of blood samples collected from tortoises and was the data steward for much of the tortoise data. As such, Mr. Holt was responsible for estimating and reporting on desert tortoise home range size, food habits, and morphological characteristics.

  Mr. Holt designed and implemented a raven and raptor study designed to monitor the effects of DOE activities, the Yucca Mountain Project, on the abundance of these species. Subsequently, he conducted hundreds of kilometers of road surveys for ravens and raptors and recorded information on behavior, location, and species. He was the data steward for these data and was responsible for analyzing and reporting on and comparing population patterns between control and treatment areas.

  Mr. Holt captured, marked, measured, determined sex, and identified to species thousands of small mammals and hundreds of lizards. These data were analyzed to compare population structure, survival, and reproductive output between control and treatment populations. Mr. Holt spent hundreds of hours collecting data on vegetative cover, density, and production from established study plots. These data were analyzed to compare differences and changes among control and treatment areas.

Resource Monitoring and Management

Mr. Holt has conducted baseline surveys for several different plant and animal species throughout the western United States. The data collected from these surveys were used to assist in resource management and in furthering the knowledge of these species and their habitats. Below is a description of these survey efforts.

- While working for JBR, Mr. Holt has conducted snow-tracking surveys for lynx and other forest carnivores; vocalization surveys for sensitive owls (including protocol surveys for Mexican spotted owls), goshawks, and three-toed woodpeckers; migratory bird and raptor nest surveys; bat surveys using an AnaBat recorder; spotlight surveys for black-footed ferrets; transect surveys for desert tortoises, prairie dogs, burrowing owls, pygmy rabbits, sage grouse, and several sensitive plant species; and electro-shocking surveys for sensitive fishes.

  Mr. Holt has used GIS technology to record and display the location of survey routes and the results of those surveys. He has also spent hundreds of hours monitoring desert tortoises during construction activities, participated in a Utah

prairie dog relocation project in Iron County, Utah, and served as an Environmental Inspector for a large Telescope Array project near Delta, Utah.

- While working for the BLM, Mr. Holt was the crew leader and data steward for a red-tree vole survey project. During the project, his crew surveyed >1,200 acres of Oregon coastal forests for the presence of red-tree vole nests. He also spent several days conducting systematic sampling of large areas for the presence of sensitive mollusk, salamander, plant, fungus, and bryophyte species, and surveyed for northern goshawks. He was also responsible for monitoring known bald eagle, great blue heron, and snowy plover nesting sites, and spent hundreds of hours collecting size and decay data on course woody debris, snags, and green trees. Further, and although funding was not available to initiate, he was responsible for designing a carnivore monitoring study that involved the use of bait and remote cameras.

- While working for the US Forest Service, Mr. Holt was the crew leader for a crew of 4 biologists collecting data on small-mammal populations in old-growth forest communities of western Montana. During these surveys, he captured and collected data on thousands of small mammals and on the vegetative communities in which they were found. In addition, on several occasions, the crew assisted another USFS crew in the placement of carnivore monitoring stations (e.g., track-plates, bait, and remote cameras).

- While working for EGG, Mr. Holt conducted numerous surveys over large areas for desert tortoises and their habitat, and spent several hours monitoring tortoises during construction activities. He also walked dozens of miles collecting line-transect data for jackrabbits and cottontails and conducted spotlight surveys along hundreds of miles of road for predators (e.g., kit fox, coyotes, etc.), mule deer, and rabbits. He also assisted in the preparation, placement, and analysis of track plates in order to determine carnivore presence. In addition, Mr. Holt spent many hours surveying large areas for the presence of various sensitive plant species.

<u>Regulatory Compliance and Environmental Permitting</u>

- While working for JBR, Mr. Holt has served as the Project Manager for >20 NEPA projects varying in intensity and including EAs and EISs. Mr. Holt has written and assisted in the preparation of several NEPA documents including: Biological Assessments, Environmental Assessments, Biological Evaluations, Environmental Impact Statements, Categorical Exclusions, and Technical Reports. Most of these documents were prepared in association with large- and small-scale mining activities, linear projects (e.g., telecommunication and power line installations, road construction, pipelines etc.), reservoirs, telecommunication sites, and bridge replacements.

- While working for the BLM, Mr. Holt served as the wildlife biologist on Interdisciplinary Teams and provided input on wildlife issues (especially as related to spotted owls, marbled murrelets, and bald eagles) for Environmental Assessments related to timber harvest, right-of-way requests, and other public land activities. While working for EG&G, Mr. Holt monitored DOE activities to ensure compliance with a Biological Opinion that provided recommendations on conducting construction activities in desert tortoise habitat. He also summarized data in support of other NEPA documents.

Selected NEPA Project Management Experience

Oil and Gas Leasing EIS on Lands Administered by the Dixie National Forest. Dixie National Forest, Utah.

PacifiCorp's Rattlesnake Power Line Upgrade Project. Manti-La Sal National Forest and BLM Moab Field Office, Utah.

Leeds Domestic Water Associations Silver Reef Pipeline and Water Tank Project. Dixie National Forest and BLM St. George Field Office, Utah.

Dixie Escalante Electric's Sun River to Beaver Dam Power Line Project. BLM St. George Field Office, Utah.

Avista Utilities ROW Renewal - Operations and Maintenance Plan. Nez Perce National Forest, Idaho.

Nez Perce National Forest's Seminole Ranch Land Exchange. Nez Perce National Forest, Idaho.

Nez Perce National Forest's Elkhorn and French Creek Bridge Replacements. Nez Perce National Forest, Idaho.

Supplemental Professional Training

Mexican Spotted Owl Training. U.S. Fish and Wildlife Service and Utah Division of Wildlife Resources. March 25 and 26, 2003. Moab, Utah.

Biological Assessment Workshop with Tools for Expediting Section 7 Consultation. U.S. Fish and Wildlife Service and the Western Section of The Wildlife Society. February 21, 2001. Sacramento, California.

Black Footed Ferret and Prairie Dog Training. Wyoming Game and Fish Department. July 31 - August 2, 2000. Medicine Bow, Wyoming.

Red-tree Vole Train the Trainer Training. U.S. Forest Service, Brian Biswell. June 1 - 2, 2000. Corvallis, Oregon.

How to Manage the NEPA Process and Write Effective NEPA Documents. The Shipley Group. November 15 - 18, 1999. Coos Bay, Oregon.

Statistical Analysis of GIS and Spatially Correlated Field Data. Western Ecosystems Technology. 5th Annual Meeting of The Wildlife Society. 1998. Buffalo, New York.

A Practical Guide to Metadata Implementation for GIS/LIS Professionals. 7th Annual GAP Analysis Meeting. August 7, 1997. Reston, Virginia.

Upper-level Course Work: Fish and Wildlife Population Ecology, Fish Ecology, Wildlife Management, Wildlife Ecology, Habitat Management, Waterfowl Management and Ecology, Principles of Forest Management, Range Management, Watershed Management, Fire Ecology, Natural History of Mammals, Natural History of Birds, Systematic Botany, Topics of Biodiversity, Statistics for Scientists II, Experimental Design, and Remote Sensing.

Affiliations

The Wildlife Society (since 1992)
Desert Tortoise Council (since 2004)
American Fisheries Society (since 2005)

Publications/Presentations

Boone, J.L. and E.A. Holt. 2001. Sexing young free-ranging desert tortoises (*Gopherus agassizii*) using external morphology. Chelonian Conservation and Biology. 4(1):28-33.

Holt, E.A., and J.M. Mueller. 1994. Monitoring raven abundance at Yucca Mountain. Proceedings of the Desert Tortoise Council Symposium. 1994:125-129.

Holt, E.A., and K.R. Rautenstrauch. 1995. Three-year movement patterns of adult desert tortoises at Yucca Mountain. Abstract Only. Proceedings of the Desert Tortoise Council Symposium. 1995:89-90.

Holt, E.A., and N.C. Parker. 1998. The development and use of a habitat profile database application. GAP Analysis Bulletin.

Holt, E.A. and N.C. Parker. 1999. Patterns of vertebrate diversity in Texas: implications for placement of future reserves. Proceedings of the Texas chapter of the Wildlife Society. 1999. Cottam Award - best student paper and presentation, 2nd place.

Holt, E.A. 1999. The distribution and diversity of Texas vertebrates: an ecoregion perspective. MS Thesis. Texas Tech University, Lubbock, Texas.

Holt, E.A, K.E. Allen, N.C. Parker, and R.J. Baker. 2001. Ecotourism and conservation: richness of terrestrial vertebrates across Texas. Occasional Papers, Museum of Texas Tech University. No 201.

Lederle, P.E., J.M. Mueller, and E.A. Holt. (In Review). Human activities, raven abundance, and desert tortoises at Yucca Mountain.

Lederle, P.E., E.A. Holt, and J.M. Mueller. 1996. The effects of site characterization activities on the abundance of ravens (Corvas corax) in the Yucca Mountain Area. Las Vegas, Nevada: U.S. Department of Energy.

Rakestraw, D.L., E.A. Holt, and K.R. Rautenstrauch. 1995. Diet of desert tortoises at Yucca Mountain, Nevada, and implications for habitat reclamation. Las Vegas, Nevada: U.S. Department of Energy.

David K. Worley

Biologist/Environmental Analyst

Wildlife Baseline Surveys
Construction Compliance Monitoring
NEPA Document Preparation
Wetlands and Waters of the U.S. Delineations
Seep and Spring/Water Surveys
Abandoned Mine Lands

Education

M.S., Zoology, University of Nevada-Reno, 1984
B.S., Biology, University of Nevada-Reno, 1977

Professional History

JBR Environmental Consultants, Inc., Reno, Nevada, Environmental Analyst/ Biologist, 1989 - Present
Independent Consultant, Reno, Nevada, Wildlife Biology, March-September, 1989
Kings River Conservation District, Fresno, California, Wildlife Aid, March-August, 1986
Tahoe Regional Planning Agency, Zephyr Cove, Nevada, Fisheries Technician, 1985 - 1986
U.S. Forest Service, El Dorado National Forest, California, Biological Aid, May-September, 1983
Koch and Associates, Reno, Nevada, Wildlife Biologist, May-June, 1982
Sierra Pacific Power Co./University of Nevada-Reno, Environmental Aid/Raptor Specialist, 1979 - 1980

Professional Experience

Mr. Worley has over 25 years of threatened and endangered species and baseline environmental survey experience in the fields of biology and zoology. He has extensive experience in conducting aquatic habitat investigations and describing terrestrial and stream ecosystems. David has been involved in numerous BLM environmental assessment projects for new industrial facilities and is familiar with the NEPA requirements. He has also conducted environmental compliance audits and abandoned mine inventory and surveys.

Wildlife Baseline Surveys

Mr. Worley has participated in JBR's wildlife baseline surveys since joining the company in 1989. He has experience with a wide variety of wildlife investigations, including considerable raptor survey experience (both diurnal and nocturnal), big and small game surveys, game and nongame bird surveys, bat studies including mist netting and Anabat recording, fisheries studies, desert tortoise surveys, amphibian surveys and macroinvertebrate sampling. Mr. Worley also has considerable experience in conducting threatened, endangered, sensitive and candidate (TES/C) wildlife species surveys and habitat assessments. Wildlife baseline surveys conducted by Mr. Worley include:

Gatsuurt Baseline Surveys
In the summer of 2006, JBR performed baseline surveys, including wildlife, vegetation, sensitive species, seep and spring, wetlands and macroinvertebrate surveys at the site of the proposed Boroo Gold Gatsuurt Mine in Mongolia. Mr. Worley and a JBR botanist performed background research on the project area, then visited the site and performed the baseline surveys.

Cortez Expanded Pediment Area Baseline Surveys
In 2000, JBR performed baseline surveys, including wildlife, sensitive species, seep and spring and waters of the U.S./wetlands surveys in the southern Cortez Mountains. In 2005, additional surrounding areas in the southern Cortez Mountains, northern Toiyabe Range and northern Grass Valley were included in a larger survey area. Bat use in the area was documented using an AnaBat recorder.

Mount Rose Baseline Surveys
JBR conducted a series of baseline surveys for the Mount Rose Ski Resort. Surveys included wildlife snow tracking, infrared automatic camera sets, sensitive species surveys (goshawk, furbearers, owls, and amphibians) vegetation and sensitive plant surveys (Tahoe draba, Galena rockcress). A number of wetland areas were delineated as a part of this survey effort.

Alta Olinghouse Baseline Investigations
Baseline surveys for this project included wildlife and TES/C surveys in mountain and foothill habitats east of Reno, Nevada. The surveys included big game, game bird and nongame investigations, habitat surveys of the project area, and extensive bat surveys of shafts and adits present in the area. Survey results were discussed in wildlife resources reports prepared for an Environmental Impact Statement contractor.

Nevada Bell Fiberoptic Line TES/C Surveys
The linear route of a fiberoptic line was surveyed for the presence of listed and sensitive species, including the threatened desert tortoise and several sensitive plant and animal species. The locations of habitats which could support these species were mapped.

The Newmont Inventory
An extensive series of baseline investigations in an approximately 300,000 acre area surrounding the site of a proposed mine expansion. Surveys included aerial big game, sage grouse and raptor nest site surveys, avian bird transects (Emlen transects and mourning dove call counts), waterbird surveys, small mammal mark and release studies, fisheries surveys and macroinvertebrate sampling, as well as threatened and endangered species surveys. Habitats included in the survey area included sagebrush valleys and foothills as well as mountainous areas, streams and wetlands and a portion of the Humboldt River. Work included compilation of reports on the various surveys conducted during the inventory.

Tahoe Basin Instream Flow Fisheries Study
A Basin-wide survey of streams in the Tahoe Basin was conducted in an attempt to quantify minimum flow requirements for fisheries in Tahoe Basin streams. The survey involved flow measurements and basic stream modeling, fish sampling and mask-and-snorkel fish preference studies.

Construction Compliance Monitoring

Mr. Worley has conducted environmental compliance monitoring for construction projects that affect wetlands and waters of the U.S.

Nevada Bell Fiber Optic Line Reclamation Monitoring
Reclamation activities at several stream crossings affected by the installation of a fiber optic line were monitored as part of the U.S. Army corps of Engineers permit.

Kern River Natural Gas Pipeline Construction Monitoring
On-site monitors were required by the State of Utah as a condition of the Kern River Pipeline Company's construction permit. Monitoring emphasized minimizing impacts to riparian and aquatic habitats which the pipeline crossed.

Nevada Department of Transportation
I-580 Water Quality and Storm Water Monitoring (2003 to present)
JBR has been conducting quarterly water quality monitoring and best management practices (BMP) effectiveness monitoring on the Nevada Department of Transportation's I-580 (Highway 395) freeway extension south of Reno, Nevada.

NEPA Document Preparation

Mr. Worley has been involved in the preparation of Environmental Analysis (EA) and Environmental Impact Statement (EIS) documents. He has written wildlife and vegetation, wetlands, wild horse and wilderness sections of these documents, and has assisted in the preparation of water quality, water resources and paleontology sections. He has also been involved in overall NEPA document preparation, and has experience with the NEPA process. This experience includes:

Preparation of the TES/C species and Wetlands sections of the Simplot Smoky Canyon B and C Panels Supplemental EIS (SEIS)
This project involved compiling information gathered in existing environmental documents and during other baseline surveys into a format suitable for inclusion in the SEIS, preparation of separate Technical Reports, Biological Assessment and Biological Evaluation documents on the project, and responding to comments on these documents.

Preparation of the TES/C species sections of the Canyon Fuels Coal Lease EIS
This involved compiling information gathered in other baseline surveys into a format suitable for inclusion in the EIS, preparation of a separate Biological Assessment and Biological Evaluation, and responding to comments on these documents.

The Washoe County Water Importation Analysis
This project involved a review of environmental impacts that could result from several water importation alternatives. Mr. Worley prepared this review following a NEPA document format. He performed preliminary evaluations of potential impacts to a variety of resources.

Preparation of the wildlife and threatened and endangered species sections of the Talapoosa EIS
This section involved compiling information gathered in other baseline surveys into a format suitable for inclusion in the EIS, and responding to comments on the document. Mr. Worley assisted in preparation of the water resources section of the document.

Preparation of the Tucker Hill EIS
Mr. Worley conducted baseline surveys of the Oregon perlite mine project, then compiled the baseline survey and other existing information in the wildlife and threatened and endangered species section o f the EIS.

Wetlands and Waters of the U.S. Delineations

Mr. Worley has been involved in a variety of wetlands delineations and waters of the U.S. surveys for rural mine projects and suburban or urban development projects. These include:

Monsanto Blackfoot Bridge Wetlands and Waters of the U.S. Delineation
In 2003, wetlands and Waters of the U.S. in an approximately 1,400 acre survey area in southeastern Idaho were surveyed and mapped as part of a proposed mineral development project. Additional acreage was added to the project area and surveyed in 2005.

West Pine Valley Wetlands and Waters of the U.S. Delineation
Wetlands and Waters of the U.S. in an approximate 36,500 acre survey area were surveyed and mapped as part of a baseline investigation for a large mineral exploration project.

Town of Truckee delineations
Wetland delineations were prepared along proposed and alternate routes of the Third Tahoe Donner Interchange, along the route of a proposed recreational trail following the south bank of the Truckee River between Highway 267 and Glenshire Drive, and adjacent to Donner Lake.

Little Boulder Basin jurisdictional waters review
The jurisdictional status of wetlands and waters of the U.S. in northern-Nevada watershed was reviewed in light of the U.S. Supreme Court's Solid Waste Agency of Northern Cook County (SWANCC) decision. Because no jurisdictional connection was found to exist between the Boulder Creek watershed and the Humboldt River, and because evapotranspiration exceeded hydrologic input in Boulder Valley, the U.S. Army Corps of Engineers ruled these waters were not jurisdictional.

Colowyo Coal Company Seep and Spring an d Wetlands Survey
A seep and spring survey and accompanying wetland-waters of the U.S. delineation was prepared on an approximately 60 square mile area in northern Colorado.

The Kinross Goldbanks waters of the US survey
A jurisdictional waters evaluation was performed in the area of a large mine project near Winnemucca, Nevada. The extent of jurisdictional waters in the area was determined by field survey. Potential impacts to jurisdictional channels were then assessed based on conceptual plans of the mine.

Seep and Spring/Water Surveys

Mr. Worley has participated in seep and spring and water sampling surveys since joining JBR. These include identifying seep and springs and characterizing the sites as to flow, water quality, habitats present, wildlife and stock usage, surrounding geology and other factors. Mr. Worley has also been involved in stream water, artificial pond and well sampling. Seep and spring/water sampling projects include:

Cortez Horse Canyon Seep and Spring Survey
The Horse Canyon area and surrounding portions of the southern Cortez Mountains were surveyed for seeps and springs. Seeps and springs, drainages and wetlands in the survey area were identified and mapped. Wildlife and other use of seep and spring sites was recorded.

The Battle Mountain Gold Seep and Spring Survey
The survey area for this project encompassed most of the Battle Mountain Range in Humboldt and Lander counties, Nevada. Over 80 sites were documented, sampled and described. In addition to work on springs, stream flows in the area were measured seasonally and streams were sampled for macroinvertebrates and endemic springsnails. Mr. Worley wrote the wildlife and spring descriptions sections of the extensive reports prepared on this study.

The Western Water Seep and Spring Survey
This was another extensive seep and spring survey in western Nevada and eastern California. Over 100 seep and springs, including springs supporting extensive wetland areas, were visited and characterized.